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LEUCOLEJEUNEA, A NEW GENUS OF HEPATICAE

By Alexander W. Evans

In the writer's paper on the Lejeuneae of the United States and Canada * three species are referred to the genus *Archilejeunea* and are described and figured under the names *A. clypeata* (Schwein.) Schiffn., *A. Sellowiana* Steph., and *A. conchifolia* Evans. While the close relationship which these species bear to one another is emphasized, attention is called to the fact that they present a number of peculiarities which are not shared by typical members of *Archilejeunea*, and the propriety of retaining them in this genus is questioned. A thorough study of several *Archilejeuneae* from tropical America, where the genus attains its highest development, soon made it evident that the importance of the aberrant characters exhibited by *A. clypeata* and its allies had not been overestimated, and it now seems advisable to separate them generically from *Archilejeunea* and to propose a new genus for their reception. This may be characterized as follows:

Leucolejeunea gen. nov.

Lejeunea *p. p.* G. L. & N. Syn. Hep. 1845.

Lejeunea, subgenus Archi-Lejeunea *p. p.* Spruce, Hep. Amaz. et And. 1884.

Archilejeunea *p. p.* Schiffn. in Engler and Prantl, Nat. Pflanzenfam. I^3: 130. 1895.

Plants medium-sized to robust, pale-green or glaucous, neither glossy nor pigmented but sometimes becoming brownish with age or upon drying: stems prostrate, copiously and irregularly branched, the branches prostrate or slightly separating from the substratum, similar to the stem: leaves loosely to densely imbri-

* Mem. Torrey Club 8: 113–183. *pl. 16–22.* 1902.

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cated, the lobe widely spreading but scarcely falcate, ovate-oblong to subrotund, more or less convex and often revolute at the rounded to very obtuse apex and along the postical side, margin entire or subdenticulate from projecting cells; lobule inflated throughout, the free margin more or less strongly involute to or beyond the apex, the opening into the water-sac being largely formed by the sinus, apical tooth varying from blunt to long-acuminate, hyaline papilla marginal, borne at the distal base of the apical tooth and more or less displaced from the terminal cell; leaf-cells plane or convex, thin-walled or with the free outer walls a little thickened, trigones small, mostly triangular with concave sides, intermediate thickenings occasional or rare; ocelli none: underleaves distant to imbricated, orbicular to reniform, entire, broad and undivided at the rounded apex, abruptly narrowed to subcordate at the base: inflorescence mostly autoicous: ♀ inflorescence sometimes borne on a short branch, sometimes on a leading branch, innovating on one side or occasionally on both, the innovations mostly short and sterile but sometimes again florifer-ous; bracts similar to the leaves, unequally bifid and complicate, the keel mostly rounded but sometimes narrowly winged; bracteole free, rounded to slightly retuse at the apex, obovate; perianth obovoid, scarcely compressed, rounded to subretuse at the apex with a distinct beak, five-keeled, antical keel low and sometimes indistinct, lateral keels sharp, postical keels rounded to sharp, keels smooth or minutely and irregularly crenulate or denticulate from projecting cells, rarely obscurely winged: ♂ inflorescence occupying a short branch; bracts mostly two to six pairs, imbricated, strongly inflated, slightly and subequally bifid with rounded lobes and a strongly arched keel, diandrous; bracteoles similar to the underleaves but smaller, limited to the base of the spike. (Name from λευκὸς, white, and *Lejeunea*, in allusion to the pale color of the plants.)

In distinguishing *Archilejeunea* and *Leucolejeunea* from each other the most important of the differential characters are those derived from the vegetative organs and the antheridial spikes. The species of *Archilejeunea*, for example, show a marked distinction between a creeping caudex and secondary stems, whereas in *Leucolejeunea* no such distinction is apparent. In *Archilejeunea* the plants are more or less pigmented, the hyaline papilla of the lobule is borne at the proximal base of the apical tooth, the trigones of the leaf-cells are large and conspicuous, the intermediate thickenings are scattered throughout the lobe, and the

pits are narrow. In *Leucolejeunea*, on the contrary, there is no pigmentation, the hyaline papilla is borne at the distal base of the apical tooth, the trigones are small, the intermediate thickenings are few and far between (except sometimes at the base of the lobe), and the pits are wide. The antheridial spikes in *Archilejeunea* are terminal or intercalary on leading branches and the bracteoles are borne throughout their entire length, while in *Leucolejeunea* the spikes occupy short branches and the bracteoles are limited to the base. In both genera the leaves are rounded to very obtuse at the apex, the underleaves are undivided, the female branch bears one or two subfloral innovations, and the perianth is five-keeled.

It is probable that *Leucolejeunea*, in spite of its undivided underleaves, bears a certain relationship to the genera *Cheilolejeunea* and *Pycnolejeunea* of the Lejeuneae Schizostipae. In some cases it resembles them so strongly in habit and general appearance that it is difficult to distinguish it from them in the field. It differs from *Cheilolejeunea* in its five-keeled perianth and in the structure of the lobule, the hyaline papilla although distal being displaced into the sinus. In *Pycnolejeunea* the papilla is proximal in position.

In addition to the three species already mentioned, *Lejeunea xanthocarpa* Lehm. & Lindenb. and *Lejeunea rotundistipula* Lindenb. may be safely referred to *Leucolejeunea*. The genus is most at home in the tropics, but its range extends well into temperate regions. The first species given below may be designated the type of the genus.

Leucolejeunea clypeata (Schwein.)

Jungermannia clypeata Schwein. Spec. Fl. Amer. Sept. Crypt. Hep. 12. 1821.

Lejeunea clypeata Sulliv. in Gray, Manual, Ed. I. 685. 1848.

Archilejeunea clypeata Schiffn. in Engler & Prantl, Nat. Pflanzenfam. 1^3: 130. 1895.

On rocks and trees. Massachusetts and New York, south to Georgia and Louisiana.

Leucolejeunea unciloba (Lindenb.)

Lejeunea unciloba Lindenb. in G. L. & N. Syn. Hep. 331. 1845.
Lejeunea (*Archi-Lejeunea*) *unciloba* Spruce, Hep. Amaz. et And. 91. 1884.
Archilejeunea unciloba Schiffn. in Engler & Prantl, Nat. Pflanzenfam. I^3: 130. 1895.
Archilejeunea Sellowiana Steph. Hedwigia **34**: 62. 1895.

On trees and rocks. Rhode Island and Delaware, south to the West Indies, Texas, Mexico, and Brazil.

Within recent years the *Lejeunea unciloba* of Lindenberg has been variously interpreted. Spruce referred to this species a rather robust plant which he had collected in the vicinity of the Amazon. Stephani considered this an error and renamed Spruce's specimens *Archilejeunea Spruceana.** At the same time he transferred the name *unciloba* to the *Lejeunea* (*Archi-Lejeunea*) *florentissima* of Spruce, thereby reducing this latter species to synonymy. During the past summer the writer had the privilege of examining the specimens of *Lejeunea unciloba* preserved in the Lindenberg herbarium at Vienna, including the material from which the original description was drawn. This study led to a third interpretation of the species. *Lejeunea unciloba* is represented in the Vienna collection by seven specimens, numbered consecutively from 6230 to 6236. These specimens came from the following stations: *6230*, locality not given, *Moritz; 6231*, Peru; *6232*, Colipa, Mexico, *Liebman; 6233*, Mirador, Mexico, *Liebman; 6234*, Brazil (the type material); *6235*, Paramaribo, Dutch Guiana, *Kegel; 6236*, Mirador, Mexico, *Liebman*. Of these numbers *6235* is marked with an interrogation point and is evidently distinct from the others. It agrees with *Lejeunea florentissima* Spruce and should be referred to this species rather than to *Lejeunea Auberiana* Mont., as Stephani has done.† The other specimens apparently agree with one another, although *6230* and *6231* are in poor condition and make a positive decision on this point impossible. Fortunately the numbers from Brazil and Mexico are more satisfactory and show that *Lejeunea unciloba*

* Hedwigia **34**: 62. 1895.
† L. c. **29**: 21. 1890.

is distinct from both *Archilejeunea Spruceana* and *Lejeunea florentissima*. It agrees, however, in all essential respects, with *Archilejeunea Sellowiana* Steph., a species which was also originally described from Brazilian specimens. It therefore becomes necessary to reduce this latter species to synonymy as indicated above.

Leucolejeunea conchifolia (Evans)

Archilejeunea conchifolia Evans, Mem. Torrey Club **8**: 128. *pl. 17, f. 1–9*. 1902.

On trees. South Carolina to Florida and Alabama.

Leucolejeunea xanthocarpa (Lehm. & Lindenb.)

Jungermannia xanthocarpa Lehm. & Lindenb. in Lehmann, Pug. Plant. **5**: 8. 1832.

Lejeunea xanthocarpa Lehm. & Lindenb. in G. L. & N. Syn. Hep. 330. 1845.

Lejeunea (*Archi-Lejeunea*) *xanthocarpa* Pears. Christiania-Vidensk.-Selsk. Forh. **1887**[9]: 4. *pl. 1, f. 14–24*.

Archilejeunea xanthocarpa Schiffn. Conspect. Hepat. Archip. Indici 316. 1898.

On trees. Mexico and the West Indies, south to Peru and Brazil (the type locality); Fernando Po, Mount Kilimanjaro, and Cape Colony; Java. This species will soon be fully described by the writer in another connection.

Leucolejeunea rotundistipula (Lindenb.)

Jungermannia rotundistipula Lindenb. in Lehmann, Linnaea **4**: 360. 1829.

Lejeunea rotundistipula Lindenb. in G. L. & N. Syn. Hep. 331. 1845.

Lejeunea (*Archilejeunea*) *rotundistipula* Steph. Hedwigia **29**: 21. 1890.

Apparently on trees. Known only from Cape Colony, the type-locality. Judging from the original specimens in the Lindenberg herbarium, this species is dioicous; in other respects it shows a close approach to *L. unciloba*.

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